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Bovine Mastitis

NATURAL HISTORY

Mastitis associated with *Str. agalactiae* infection is a chronic infectious disease characterised by frequent or occasional acute activity. The incubation period is usually long and the onset chronic, though it may be acute, and as the tissue changes develop there are active and latent periods varying somewhat according to the methods of feeding and milking. It is by no means rare for light infections, detected by cultural examination, to recover spontaneously (Stableforth, Edwards, and Minett, 1935; Minett, 1939; Munch-Petersen *et al.*, 1940; Udall, 1939; Mattick *et al.*, 1941; Hignett, 1942). Johnson (1941) noted spontaneous recovery in 4 to 25 per cent. of infected quarters in four herds over a period of one or more years. He carried out combined clinical and laboratory examinations and found that nearly all cows infected with *Str. agalactiae* could be detected when dry, by the presence of pus or large clots in the quarter; this would appear to be quite a useful method of diagnosis.

The part played by *Str. agalactiae* in the pathogenesis of mastitis is not yet completely understood. As long ago as 1865 John Gamgee, one of our most brilliant veterinarians, said "Diseases of all kinds are attributable to predisposing and exciting causes. The majority of maladies require a combination of agencies to induce them; but there are some which can only be developed by one unchangeable and specific means which we designate contagion." The truth of this statement was lost sight of because of the great advances which were made during the early bacteriological era, but the view that disease is due to a combination of multiple factors has recently been emphasised (Ryle, 1942; Stableforth, 1942; Lovell, 1942). Although mastitis is a disease primarily produced by a variety of causes, there can be little doubt that *Str. agalactiae* is the ultimate cause of the changes which we recognise as characteristic of mastitis.

There are some aspects of the spread of mastitis which are difficult to understand, but for practical purposes the original view that it is an infectious disease spread to healthy udders by the hands of milkers, or perhaps, even more important, by milking machines, is still true. *Str. agalactiae* has occasionally been found in other sites than the udder (Munch-Petersen *et al.*, 1940) but there is much evidence that by far its most important habitat is the diseased, or to a less extent, the "normal" udder. Control programmes based on this assumption have been generally successful, whereas mastitis due to staphylococci, the other types of streptococci, *C. pyogenes* and coliform organisms is sporadic and cannot be controlled by isolation and the usual hygienic precautions (Little, 1940); this indicates that these organisms have some other habitat than the infected udder and they have been isolated from quite a large proportion of bovine tonsils and vaginas (Francis, 1941a). *Str. agalactiae* was not isolated.

Str. agalactiae infection was soon detected in a heifer herd established by Munch-Petersen *et al.* (1940), and it is recognised that this organism can sometimes be isolated from heifers immediately after calving, before they could have acquired infection from adult cows (Mattick *et al.*, 1941). In three herds containing 25 to 54 per cent. infected adult cows and in which the calves were fed raw milk and were not prevented from sucking each other, Schalm (1942b) found that 3·2 per cent. of 248 heifers were infected at calving. In a fourth herd which contained 54·5 per cent. infected cows, the calves were fed pasteurised milk and did not suck each other; none of the heifers was infected when they first calved. In a small experiment one of a group of four calves fed on infected milk and allowed to suckle each other was heavily infected with *Str. agalactiae* when it calved. Little (1940) removed calves from their dams at birth and by this means established a herd which has remained free from *Str. agalactiae* infection for nine years, although acute mastitis caused by various other bacteria has occurred. This herd has been kept under completely natural conditions.

It has long been known that the use of a milking machine with a high vacuum will produce udder damage followed by mastitis. Watts (1942) compared the incidence of mastitis in two groups of herds milked by different makes of milking machines and found that the initial incidence of mastitis was much higher in one group than the other; this difference was constantly maintained during a period of six bi-monthly tests. No decrease in the incidence rate was obtained by relatively strict control measures in the herds milked by one type of machine, and in this group the number of cows with clinical mastitis was constantly higher than in the other where control measures were successful.

It has been suggested that when during milking the pressure on the teat is released bacteria tend to be sucked into the teat canal. On this assumption, the milking machine would be preferable to hand milking as it maintains a constant negative pressure outside the teat. Despite a careful study, however, Espé & Cannon (1942) were unable to demonstrate suction following the release of pressure on the teat. They found that the constant vacuum during machine milking produced congestion of the end of the teat, and even slight eversion of the teat sphincter. The number of inflamed and eroded teat sphincters was significantly higher in cows milked by machine than in those milked by hand. The susceptibility of cows to this type of injury varied considerably.

Udall (1939) transmitted mastitis by first milking infected and then clean cows, but symptoms only developed after three months in the form of fibrosis of the udder, pin-point flakes in the milk, and a few bacteria on blood agar plates. Minett & Steck (1935) also drew attention to the long incubation period. Udall emphasised that the causes of mastitis fall under two main groups: the badly infected cow, and bad stable and milking hygiene, particularly lack of care in protecting the udder. He says we should not disclaim knowledge of the method of spread of mastitis because of the failure of attempts at experimental transmission which do not really duplicate stable conditions. He lays great stress on the importance of injury in the development of mastitis; in a small experimental herd in which every other cow was heavily infected with *Str. agalactiae*, and in which no special precautions were taken, only one new case developed in three years without previous injury. Johnson (1941) noted that after injury Group II and III mastitis streptococci invaded quarters which were previously free from infection. After a time the udder became bacteriologically sterile but remained slightly indurated and one to two months later *Str. agalactiae* could be isolated.

The difficulty of producing mastitis experimentally except by the direct inoculation of bacteria into the milk sinus has, however, given rise to the view that there must be predisposing causes. One of these is the so-called non-specific mastitis (for review see Francis, 1941b). Van Rensburg (1941) also found that in a disease-free herd, made up from heifers, the secretion of abnormal milk by quarters which have never been infected with mastitis streptococci or other pathogenic organisms, and which show no induration of the udder tissue, is by no means rare. Quarters with marked induration and clinical changes in the milk were also observed in which no bacteria could be found.

Steyn (1940) reviewed work on the physiology of milk secretion. The letting down of milk is an active, not a passive process, and is due to "erection" of the udder tissue; even so, however, thorough milking only removes 80 to 85 per cent. of the milk and he therefore concludes that incomplete stripping (not, of course, incomplete milking) has little or no effect on the percentage of butter fat, the persistence of milk secretion or the health of the cow. No critical work has been done on the "drying-off" of cows, although this process is of great importance in the control of mastitis. It is well known that withdrawal of milk and even the reflex stimulation of suckling or milking stimulates milk secretion. Steyn maintains that the usual practice of drying-off cows by intermittent milking is physiologically unsound. He points out that when a newly calved heifer has a blind quarter it becomes greatly distended but eventually atrophies without mastitis developing. The marked tension which follows cessation of milking begins to subside in two to three days, just at the time when, under the usual system, secretion would be stimulated by milking. He admits, however, that a cow should not be dried off abruptly unless the yield is less than half the maximum or below two gallons a day. Similar views have been expressed by others at various times, but it is clear that they cannot be put into practice without previous careful observation and experiment. They do, however, receive some support from the work of Pounden (1941), who "treated" 16 cows suffering from acute parenchymatous streptococcal mastitis by discontinuing milking of the affected quarters until they had regained their normal soft consistency. The more intense the inflammatory reaction, the greater was the chance that the organisms would be eliminated. Resolution occurred in

three days and the subsequent milk yield was little affected. The method was used with success in two cows which developed mastitis as a result of the intermittent method of drying-off; the usual treatment which involves frequent stripping would have prevented drying-off. It seems doubtful, however, whether a practitioner would be justified in carrying out this method until further research has been reported.

Diagnosis

It is obvious that a simple, accurate method of diagnosis is essential before any large scale attempt at control can be undertaken, and a great deal of work has been carried out to ascertain the most practical method of diagnosing mastitis.

Minett, Stableforth and Edwards first used blood agar plates; then selective agents, crystal violet and aesculin, were added. Finally, Edwards (1938) introduced a Na azide crystal violet broth. Using one or other of these methods for diagnosis, numerous workers have succeeded in controlling mastitis. Mattick *et al.* (1941) compared the value of these tests with a modified Hotis test in which, after incubation for 18 hours in the presence of brom-cresol purple, milk from all the tubes was streaked on to blood agar plates. As judged by the results of the Hotis test, all the others failed to detect a very large number of positive samples. Stirling (1940) also found the crystal violet-Na azide broth technique to be relatively insensitive. McKenzie (1941) used a selective broth containing thallium acetate and glucose for the isolation of mastitis streptococci. All methods employing broth are certainly simpler than the plating technique but they still involve the use of laboratory media.

There are various indirect tests which depend upon changes in the composition of the milk, for the detection of mastitis. Some of them are easy to perform but their defect is that, on the one hand, they do not give positive results until sufficient udder damage has been caused to produce changes in the milk, and, on the other, that they sometimes give false positive results. Van Rensburg (1941) has reviewed some of the earlier work on the diagnosis of mastitis and reported his own extensive investigations. Increased alkalinity as shown by the B.D.H. universal indicator or brom-thymol-blue only detected 39·1 per cent. and 25 per cent. respectively of infected quarters. Chlorine determination detected more infected quarters but also gave a large number of false positive results. The methylene blue reduction time of mastitis milk was considerably reduced but this cannot be looked upon as a diagnostic test. The Hotis test detected a large number of infected samples but gave a large number of false positive reactions. These results are in general agreement with those of other workers.

The remaining "indirect test" is clinical examination of the udder. Udall (1939) says that whilst the technique appears to be simple, skill in the classification of udders is acquired only after long practice. He maintains that whilst bacteriological diagnosis is desirable it is not generally available and not essential for the control of chronic mastitis. It is now realised that a negative cultural examination, particularly by some of the methods in general use, cannot be taken as definite evidence of the absence of *Str. agalactiae* infection. (Minett, 1939; Mattick *et al.*, 1941; Munch-Petersen *et al.*, 1940).

A single cultural examination may be more sensitive, but may not be absolutely more reliable than a careful clinical examination. Stableforth (1942) discussed the value of the various methods of cultural examination and his statement that "In present circumstances we have to realise that as part of a national scheme regular cultural examination is quite impracticable," gives added importance to control based on the classification of udders into the various clinical classes carefully described by Udall (1939). This method would obviously eliminate the badly diseased udder which is probably the chief source of infection. Bryan and Taylor (1938) considered physical examination of the udder to be a more accurate method of diagnosing mastitis than the leucocyte count, chloride content of the brom-thymol test. Miller and Johnson (1938) were, however, unable to differentiate clearly between infected and uninfected udders by means of a clinical examination.

The microscopic examination of incubated milk samples has been carried out for some years in America and appears to be a simple and accurate method of diagnosis. After giving a warning that when short-chained streptococci are seen in a smear a definite diagnosis of mastitis should not be made unless there is induration of the udder, Kleckner (1942) says that it is a practicable and reliable method of diagnosis, especially suitable to the practising veterinarian who is carrying out segregation and treatment programmes, since it not only reliably detects infection but also reveals the probable aetiological agent. Earlier work has been reviewed by Van Rensburg (1941), who found that smears prepared from 267 samples of incubated milk detected 93·6 per cent. infected samples as against 88·8 per cent. revealed by cultural examination. On the other hand, in the examination of over 6,000 milk samples from known clean cows long-chained streptococci were only detected once and they were morphologically distinct from *Str. agalactiae*. He concludes: ". . . microscopic examination of smears made from milk that has been incubated over night at 37° C. is just as reliable as cultural methods. It requires less time, labour and equipment and can easily be adapted to testing under field conditions." The reliability of this test obviously depends on the care with which milk samples are taken and the experience of the person examining the slides, but it appears that it is being used on an increasingly large scale by practitioners in the U.S.A.

Milk samples are incubated for 15 to 18 hours, the milk is then well mixed by inverting the tube and a smear made, centrifugation is not necessary. The smears can then be stained by any of the usual methods, but Van Rensburg (1941) has described a simple method which combines fixation, fat extraction and staining.

(To be concluded)

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THE VETERINARY RECORD
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THE PRACTITIONER AND DOMESTIC FOOD PRODUCTION

THE exigencies of war have seen many new developments, especially in connection with home food production. One such development which is of no small interest to the veterinary practitioner is the great extension in the keeping of small livestock for domestic food production on a "back-yard" scale in urban and suburban areas. Local by-laws restricting this have been annulled and development has been rapid.

That there is a place for the veterinary surgeon in this scheme of things none can deny, and it is both a novel and welcome addition to the usual urban round, contributing as it does both to the interest of the practice and to the usefulness of the town practitioner who may have been hitherto mainly concerned with the non-productive (in a national sense) household pets.

The raising and fattening of pigs on a comparatively small scale to utilise household waste has found expression in the formation of pig clubs rather than in individual pig-keeping, although this latter has also increased in the more outlying suburbs. Pig clubs are many and varied, ranging as they do from the large municipal concerns run under the auspices of a local authority, through the smaller co-operative clubs commonly met both in city and suburb, to the one or two pigs kept on a privately arranged communal basis by a few householders in the more rural areas.

Many of these clubs have obtained the honorary services of a veterinary surgeon, who may also be a member of the committee of management of the club; others rely upon enlisting the aid of the local practitioner when the need arises. The former method has much to commend it, and it is gratifying to note that this honorary position is an obligation which is willingly undertaken, and even welcomed, by most practitioners, who recognise in this an opportunity to advise on the general care and management of the pigs—which under club conditions are usually left to the mercy of enthusiastic but inexperienced amateurs—and so indirectly to assist the nation's meat supply even if in small degree. Pig club work for the practitioner lies mainly in the realm of animal husbandry, combined with a proportion of incidental—and not always unamusing—ailments which arise from time to time. One store pig is a not inconsiderable item in the finances of the smaller clubs and consequently the practitioner is expected to regard his patient as an entity rather than as a member of a herd.

Disease on a significant scale is met usually only among the municipal clubs where the number of animals kept is comparatively large and which are usually run as a business proposition by the local authority; consequently the veterinarian here stands more in the usual relation of practitioner to client than is the case with smaller clubs. From the point of view of preventive medicine the various outbreaks of foot-and-mouth disease and swine fever attributed to insufficiently cooked swill make it even more desirable that a veterinarian should keep a weather eye on the cooking arrangements of clubs, particularly where these are left to persons unacquainted with the potentially serious results of even one day's carelessness.

The extension in goat keeping, usually on a purely household scale, is perhaps not so marked as in the case with other stock, but it is none the less significant. The town practitioner may be called in for advice and treatment of a number of these patients in present times. The majority of problems with which he has to deal are concerned with the reproductive system and lactation, but even so it must be said that his response to requests to visit goats is not always free of trepidation since, on reflection, the goat appears to have had a singularly minor place in the veterinary curriculum. It is the more pleasing, therefore, that the goat is now receiving some attention from the research worker, and it is to be hoped that the sum of our knowledge of goats will be materially increased as a result of more frequent contact with the household goat.

Perhaps the most marked development in home food production is the tremendous increase in the number of households now keeping poultry or rabbits, often both. This development has been met by the formation of many local domestic rabbit and poultry clubs, run under the auspices of the Ministry of Agriculture through the Domestic Poultry Keepers' Council. It is in relation to these clubs that the local practitioner can be most useful, although individual contact with poultry and rabbit keepers is none the less valuable. Many of these clubs have appointed Honorary Veterinary Surgeons among whose duties are occasional attendance at meetings to answer questions on disease and management, to meet and discuss problems with the members, to give lectures when requested to their own or neighbouring clubs and to see members' animals or birds at the surgery, this usually being on an agreed fee basis. Some practitioners undertake routine *post-mortem* examinations, others prefer that the carcase be sent to one of the recognised laboratories, and whilst this latter course undoubtedly results in a more detailed examination and more definite diagnosis, it is a fact that owners will frequently present carcases to their local practitioner for examination when they would not go to the trouble of sending them away to a laboratory.

Few will question the desirability of the health of poultry and rabbits being the concern of the veterinarian when they hear the well-meaning but mistaken attempts of the lay poultry or rabbit keeper to interpret symptoms or *post-mortem* findings in the absence of professional advice. That the performance of this work in war-time calls for versatility, ingenuity and some revision of ideas is undeniable. In dealing with backyard stock at the present time the inevitable if retrogade step of dealing with the individual rather than thinking in terms of preventive medicine or positive health has to be taken. To the owner one bird of his small flock is not only an item worthy of consideration on financial grounds but is also a unit not easy of replacement in present circumstances. Similarly with rabbits, one utility breeding doe is quite an item in the light of present inflated prices in the rabbit industry. To give useful and sound advice on hygiene, housing and management, not to speak of individual cases of disease, which can be followed at the present time of regulations concerning housing and feeding stuffs may well be the despair of the practitioner. Yet it is surprising what can be achieved by the application of much common

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sense and no little ingenuity, together with the co-operation of a willing and appreciative animal owner.

Apart from this there are many general aspects of domestic food production in which the veterinary surgeon can and should play his part. The country-wide campaign of "Dig for Victory" weeks—which, despite the title, embrace all forms of food production—running under the auspices of the Ministry of Agriculture, provides an opportunity for the local veterinarian to co-operate. A popular feature of these "weeks" is the "Backyard Brains Trust" of which the practitioner can be, and often is, a useful and welcome member. An example which may well be widely followed has been set by a borough council which has retained the services of the committee which organised its "Dig for Victory" week as a standing Food Production Committee for the duration; of this Committee the local veterinarian is a member, thus demonstrating the interest of the profession in local efforts to produce food.

Not only do these activities enable the practitioner to play a useful part in stimulating small livestock keeping but they improve the relations of the profession with the public, bringing the latter to realise more fully the ever-widening sphere of veterinary science. It is a regrettable fact that many poultry and rabbit keepers express surprise that the veterinary profession concerns itself with these animals, but this does not in any way diminish the welcome extended by owners to practitioners who display such interest. Many veterinarians already give much of their time to this work—they may rest assured that their labours are rewarded by the appreciation of the public and the consequent enhancement of the prestige of their profession. It is not too much to hope that in the future every urban practitioner who can do so will play his part in this sphere of domestic food production which bids fair to become a permanent feature of town life and practice, even in post-war years.

VETERINARY RESEARCH IN SCOTLAND

A special meeting of official representatives of the three Scottish associations of herd owners concerned in milk production and the breeding of dairy stock was held in Glasgow last week, when the Chairman, Mr. Adam Montgomerie, stated that herd owners claimed that the time was now ripe in Scotland for a research scheme on new and comprehensive lines. Scottish herd owners were prepared to give the maximum possible support to a scheme on the lines suggested. Their case was much strengthened by the promised cordial support and co-operation of Scottish scientists engaged in the industry and of the leaders of the Scottish Branch of the National Veterinary Medical Association.

Dr. Chalmers Watson supported the plea put forward by Mr. Montgomerie and referred to mastitis. In 1938 a special publication on "Mastitis" was issued under the auspices of the Imperial Bureau of Animal Health. The concluding chapter supplied at once the cream of the editor's work and a justification for the proposed new Scottish research scheme.

With regard to the expenditure necessary, the speaker had been privileged to see a little of the work on new and comprehensive lines recently introduced in Scotland, and confidently predicted that from such work there must later accrue from the research—quite apart from the question of any speedy cure for mastitis being obtained—an advance in veterinary education and practice in this country which would fully justify the expenditure many times over.

Mr. David Paterson suggested that an official report of the meeting should be sent to the Scottish members who raised the question in Parliament, and to the Under Secretary of State, and this was agreed to.

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Weekly Wisdom

The aim of a school should be to have these departments in charge of men who have, first, ENTHUSIASM, *that deep love of a subject, that desire to teach and extend it without which all instruction becomes cold and lifeless; secondly,* A FULL PERSONAL KNOWLEDGE OF THE BRANCH TAUGHT; *not a second-hand information derived from books, but the living experience derived from experimental and practical work in the best laboratories.*—Aequanimitos, with other Addresses. William Osler (H. K. Lewis).

CLINICAL COMMUNICATIONS

Stilboestrol—Pituitrin in Dystokia

JOHN PASFIELD, M.R.C.V.S.
Horsham, Sussex

The subject was an eight-year-old Corgi bitch in good general health, fat condition, large gluteals. No previous sexual history was obtainable, but the owner believed her not to have whelped before. The date of full term should have been February 26th, 1942.

March 2nd.—First examination. Intermittent labour pains in evidence for some hours, quite rhythmical but no serious expulsive efforts. Temperature 100·5° F. Pulse normal (90). Very small quantities of immature milk in all glands. Cervix beginning to dilate; whole tract deficient in lubricant. vulva practically virginal, exploration difficult. One foetus palpable in left horn. Advised no immediate treatment.

March 3rd.—Anorexia. Labour pains less marked. Temperature and pulse still normal. Cervix, vagina, mammary glands as March 2nd. Caesarean section advised; owner unwilling. Prognosis very guarded. Stilboestrol, intramuscularly, 5 mgm. left shoulder. Pituitrin 1 c.c. left gluteals. Spoon-feeding with meat essence commenced.

March 4th.—Owner reported no change.

March 5th.—Subject alert, general condition good. Continued anorexia. Increasing thirst evident, but only for water. Temperature 103° F., pulse wiry (100). Foetus palpable in same position. Slight muco-haemorrhagic vaginal discharge; constant licking of external genitalia. Stilboestrol, intramuscularly, 10 mgm. right gluteals. Pituitrin 1 c.c. right shoulder.

March 7th.—General condition unchanged but vaginal discharge changing to dark green. Owner irrigating vagina 1 : 1 000 euflavine every four hours. Foetus in same position. Temperature 103° F., pulse as before (100). Normal milk appearing in posterior glands. Vulva swelling. Stilboestrol, intramuscularly, 10 mgm. left shoulder. Pituitrin 1 c.c. left gluteals.

March 9th.—Subject weaker. Continued anorexia. Temperature 103° F. Pulse very wiry (100). Haemorrhage into anterior chamber left eye. Vulva very swollen, profuse and offensive green discharge. Irrigation continued. Stilboestrol 5 mgm. right gluteals. Pituitrin 1 c.c. right shoulder. Mammary glands turgid, small quantity normal milk.

March 11th.—Temperature 103° F. Pulse very wiry (100). Macerated head of foetus found hidden in bed. Body of foetus palpable per rectum. No traction attempted. Vaginal discharge ceased. Mammary glands very turgid. Stilboestrol 5 mgm. left shoulder. Pituitrin 1 c.c. left gluteals.

March 12th.—Temperature 103° F. Remainder of foetus impacted in vagina withdrawn. Profuse offensive discharge. Uterus irrigated 1 : 1,000 euflavine, expressed manually. Soluseptasine, intravenously, 10 c.c.

March 13th.—Treatment as March 12th.

March 14th.—Temperature 102·4° F. Discharge much less, changing colour to red. Tab. sulphanilamide 7½ gr. t.d.s. Appetite returning.

March 15th.—Temperature 102° F. Discharge practically ceased. Treatment as before. Appetite good.

March 18th.—Treatment discontinued. External symptoms of oestrus continued until March 27th. Haemorrhage into anterior chamber of eye cleared by May 10th.

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Anaesthesia in the Ferret

PAUL CROSFIELD, M.A., M.R.C.V.S.
Chipping Norton, Oxon.

Subject.—Three-year-old hob ferret. weight 1 lb. 13 oz., with a large sebaceous cyst in the right parotid region.

The subject's weight was taken as 2 lb. for purposes of anaesthesia and 0·2 gr. of nembutal injected intraperitoneally. After 20 minutes, there was little if any effect and a further 0·2 gr. nembutal was administered intraperitoneally. As this only produced slight drowsiness 3 c.c. of 3 per cent. novutox was infiltrated round the cyst, merely resulting, however. in partial anaesthesia.

I record this case in view of what appears to me an unusual degree of resistance to anaesthesia by this species.

For failing to notify that a cow in his Accredited herd of British Friesians was affected with tuberculous emaciation, a Little Eaton farmer was fined £25 by Derby County magistrates.

ABSTRACTS

[FIELD TESTS OF VARIOUS ANTHELMINTICS USED FOR THE TREATMENT OF HAEMONCHOSIS. Whitlock, J. H. (1942.) *Amer. J. vet. Res.* **3**. 386.]

The author used heavily infested flocks in North Central Kansas, where nematodes other than *Haemonchus contortus* are rare. Inadequate diets favour the development of haemonchosis, which is commonest from mid-August till the frosts come. Infested flocks were selected by egg counts. No data obtained from animals with less than 2,000 e.p.g. were included, because the standard error is very large with low counts, and Taylor placed the threshold of parasitic disease at 2,000 to 6,000 e.p.g. Whitlock's work has confirmed both these points. Reduction of the egg count below 2,000 e.p.g. was taken as the indication of satisfactory treatment. The sheep were selected at random, so that the sizes of the initial infestations were well balanced between each group.

A list is given of the compositions and prices of the nine anthelmintic compounds tested; they include phenothiazine, solid or in suspension, copper sulphate alone (1·7 or 10 per cent.), against which the others were tested, and combinations of copper sulphate with nicotine sulphate (40 per cent.), formalin, arsenic trioxide and kamala. The directions of the makers of some of these compounds were ignored because the experimental evidence for them was "extremely shaky," because it is not sound practice to fast animals which are already ill and weak before dosing them, because Swales has shown that starvation for the time usually recommended has no effective influence on the abomasal contents of sheep and because phenothiazine needs no preliminary starvation so that other anthelmintics could be tried in this way.

Before the doses of cunic,* copper sulphate and copper formate, the animal's mouth was sprayed with 1 to 2·5 c.c. of 10 per cent. copper sulphate to stimulate the oesophageal reflex.

The data given indicate that the addition of arsenic, formalin, nicotine sulphate or formate to soluble copper salts does not increase their efficiency against *Haemonchus contortus*. There was no evidence that cunic was more effective against this species than copper sulphate alone. But phenothiazine was significantly more effective than copper compounds, as numerous other workers have also shown.

Copper sulphate, however, may be expected to remove satisfactory numbers of *H. contortus* in most cases; it is cheap and easy to give. Thus the treatment of choice is 1 c.c. per 10 lb. live weight of 10 per cent. copper sulphate solution, preceded by 1 to 2·5 c.c. (according to weight) of the same solution sprayed into the mouth.

The author also says, however, that his experiments show that a satisfactory removal of *H. contortus* is not effected by copper sulphate from an appreciable number of animals. When, therefore, it is a question of saving an animal's life, copper sulphate should not be used, especially because acutely ill animals will sometimes die even when their worms are removed by copper sulphate. Phenothiazine will also sometimes fail in acute cases, but less often than copper sulphate; it is expensive and the author thinks it is hard to give. [Dispersible powders now available in England are as easy to give from a bottle or syringe as milk or any other fluid.] Treatment should include the restoration of blood loss and a better diet.

The author discusses secular variation, *i.e.*, the variation in the effectiveness of a drug when it is tested on different sample populations. For example, the first treatment of his flock A showed only three out of 14 treatments with 1·7 per cent. copper sulphate to be unsatisfactory, but the second administration of the same drug showed, under apparently identical conditions, 16 out of 23 treatments to be unsatisfactory. No anthelmintic tests for the comparison of drug or dose efficacy are valid, therefore, unless they are done at the same time on approximately the same population. The author thinks that the most probable cause of secular variation is variation in the efficacy of the oesophageal reflex. (It should be noted that the author is dealing with *H. contortus* only.)

G. L.

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[THE RESPONSE OF "CEASED" REACTORS IN BANG'S DISEASE TO RE-EXPOSURE. Beach, B. A., Irwin, M. R., and Ferguson, L. C. (1942.) *J. agric. Res.* **65**. 523.]

The authors carried out experiments in two herds consisting of animals whose full histories as regards brucella infection were known, to ascertain the effect of re-exposure to infection of animals which had once been reactors. A number of these animals were infected in their first pregnancy and observed over a period of two years when those which were no longer reactors were selected. They were reinfected by instilling two drops of a heavy suspension of a virulent strain of *Br. abortus* into the eye.

Only one of 16 ceased reactors aborted after a second exposure and in only one other case could *Br. abortus* be isolated at the time of parturition, from the placenta.

After the first exposure the blood agglutination titres rose from 1:50 to 1:200. After the second exposure, five years later, all the titres were lower except one.

The authors consider the above as additional evidence in support of the view that an active immunity of relatively long duration is engendered by the virulent organism.

N. S. B.

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[POSSIBLE IRRITATING EFFECTS FROM DUSTING BABY CHICKS AND GROWING ADULT FOWLS WITH HYPOCHLORITE POWDERS. Costigan, Stella M. (1942.) *Amer. J. vet. Res.* **3**. 235.]

The results of extensive experiments carried out with hypochlorite dusting powder containing 15, 50 and 70 per cent. available chlorine confirmed the harmless nature of this procedure. No inflammation of the respiratory tract was observed nor was the egg production affected. The dusting process did, in fact, reduce mortality and lessen the inflammatory process in groups of birds affected with infectious bronchitis and laryngotracheitis as compared with the controls.

N. S. B.

* The term "cunic" is coming into use as a synonym of copper sulphate, and nicotine sulphate, as distinct from copper sulphate alone.

IN PARLIAMENT

Lords Debate the Future of British Agriculture

In the House of Lords on Thursday of last week, Lord Perry called attention to the economic and social necessities arising out of the decision by the Government that a healthy and well-balanced agriculture should be a permanent feature of national policy, and moved that the Government should now state its plans for giving its effect to this pledge.

The demand to-day was for a continuation of the form of encouragement applied in both the last war and in this—namely, guaranteed prices for farm production. Guaranteed prices would remove forebodings and liberate that energy which was necessary to the restoration on a permanent basis of a prosperous agriculture. Such a move would mean a guaranteed living for farmers—a tall order, he admitted, and he could well understand a hesitancy on the part of Ministers to commit themselves and other Ministers for the future. Farmers had to be advised constantly and he suggested that County War Agricultural Committees should continue in office in the years of peace, having defined statutory powers. Once properly selected as such, agricultural land should never be exploited for any other purpose.

The Earl of Selborne, Minister of Economic Warfare, said there had never been a greater tragedy enacted or a greater blunder made than the way in which agriculture was let down between the two wars. The farmer, having been bitten once, would be twice shy, and if after the war farmers had reason to believe that this country was once more going to become the dump of the world's surplus, and exposed to the same sort of economic blizzard as before, the great bulk of them would go down to ranch farming. That would mean many thousands of unemployed. We should then start our post-war period with an unparalleled slump in agriculture. But there had been no change in the weight which the Government attached to the importance of maintaining a healthy and well-balanced agriculture after the war.

Programmes had been put forward by the National Farmers' Union, the Royal Agricultural Society, Central Landowners' Association, the Council of Agriculture, and a group of members of their lordships' House. In all the programmes there was a marked degree of unanimity, a fact which carried great weight with the Government and the nation. But agriculture was one of the many problems which would have to take its turn with a variety of other important problems; it could not be treated in isolation because of its nature, and it was not a national but an international problem. It had been placed high in the Four-year Plan mentioned in the Prime Minister's broadcast, and the various reformers on numerous subjects requiring post-war development must have patience and confidence in the Cabinet and mercy on the physical capacity of Ministers, whose whole energies were devoted to successful prosecution of the war. The simple fact was that Ministers had not got time to prepare plans.

Lord Hastings stated that it was quite untrue to say that the farmers to-day were subsidised and filling their pockets at the expense of the taxpayer. Security in agriculture depended largely upon wise finance, and the danger he foresaw was that in existing circumstances no financial reserve was being created by farmers. Agriculture was a veritable sink for money; he pleaded for some

remission of taxation which would allow for renewal and maintenance towards the establishment of a prosperous agriculture out of its own resources.

Viscount Bledisloe observed that the outlook for British agriculture was markedly brighter and it would become brighter still if there were more assurances that the industry would be put upon a permanent, secure basis without being perpetually propped by doles or subsidies.

The Duke of Norfolk, Joint Parliamentary Secretary, Ministry of Agriculture, said that both in the urban and rural districts there was great confidence in the agricultural industry. He was certain that in the not far distant future there must be a long-term policy for agriculture.

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Questions

Milk (Pasteurisation)

Mr. Purbrick asked the Parliamentary Secretary to the Ministry of Food whether he will make available to Members of Parliament the details of the experiments which are claimed to have been made by veterinary surgeons, and their findings in connection therewith, contained in the resolution sent him from the National Veterinary Medical Association relative to the compulsory pasteurisation of milk in this country?

Mr. Mabane: My Noble Friend has received a copy of the resolution in question. It does not refer to any experiments by veterinary surgeons, but records the views of the National Veterinary Medical Association on certain aspects of milk policy.

NOTES AND NEWS

The Editor will be glad to receive items of professional interest for inclusion in these columns.

Diary of Events

June 8th.—**One-hundredth Annual General Meeting of the Royal College of Veterinary Surgeons**, at the Royal Agricultural Society of England, 16, Bedford Square, 11 a.m.

June 8th.—R.C.V.S. Committee Meetings, 16, Bedford Square, W.C.1.

June 8th.—Annual General Meeting of the Victoria Veterinary Benevolent Fund at 16, Bedford Square, immediately following the Annual General Meeting R.C.V.S.

June 9th.—R.C.V.S. Committee Meetings, 16, Bedford Square, W.C.1.

June 10th.—**R.C.V.S.** Committee and **Council** Meetings, 16, Bedford Square, W.C.1.

June 11th.—Meeting of the Lincolnshire and District Division, N.V.M.A., at Peterborough, 2 p.m.

June 12th.—Meeting of the Scottish Metropolitan Division, N.V.M.A., at Stirling, 2.30 p.m.

June 16th.—Meetings, N.V.M.A.: Combined Meeting of the Joint Veterinary Officers and Public Health and Parliamentary Committee, the Finance Committee and the Survey Committee at 36, Gordon Square, W.C.1, 11 a.m.; **Ordinary Meeting of Council** at the Connaught Rooms, Great Queen Street, W.C.2, 2.15 p.m.

June 17th.—Meeting of the South-Eastern Division, N.V.M.A., at Maidstone, 2.30 p.m.

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Knighthood for Mr. Cabot

Our readers would wish us, on their behalf, to express our appreciation of the announcement made in the first section of the Birthday Honours List published on Wednesday, that Mr. Daniel Alfred Edmund Cabot, Chief Veterinary Officer to the Ministry of Agriculture, has been awarded a Knighthood. We take this honour to be not only an acknowledgment of the personal services which Mr. Cabot has rendered during the tenure of his office with the Ministry, but also a recognition of the place which veterinary science has come to occupy in the economy of the State.

Mr. Cabot qualified from the Royal Veterinary College, London, in July, 1910, and after a year as House Surgeon at the College he immediately joined the staff of the Ministry, remaining throughout at the headquarters in Whitehall, where he was a highly efficient understudy to successive Chief Veterinary Officers in Sir Stewart Stockman, Sir Ralph Jackson and Sir John Kelland. In that capacity he was also able to render invaluable help to the field workers of the Ministry on account of his first-hand knowledge of administrative matters.

The section of the Honours List containing the announcement of Mr. Cabot's Knighthood was issued on the day on which we went to Press, and notification of further awards of special interest to our readers in this and the succeeding section will be made in our next issue.

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N.V.M.A. Meetings

Attention is drawn to the important Association meetings notified above to be held on Wednesday, June 16th, the meeting of the combined Committees named, at Gordon Square, in the morning, and the Council meeting at the Connaught Rooms in the afternoon. It is hoped that all concerned will make every effort to attend.

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R.C.V.S. Annual General Meeting

Owing to the paper shortage it will be impossible to print sufficient copies of the Annual Report to circulate to all members on the Register. Members who wish to receive a copy should send a postcard giving name and address to the Secretary, R.C.V.S., 18, Victoria Avenue, Harrogate.

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R.C.V.S. - OBITUARY

Anderson, William, J.P., of Brunscar, Keith, Banff. Graduated N. Edinburgh, April 17th, 1874. Died May 21st, 1943; aged 89 years.

Mr. William Anderson, J.P., M.R.C.V.S.

In the death of Mr. William Anderson, which we record with deep regret, the veterinary community in Scotland mourns the loss of one of its outstanding members, who also was second in seniority among all the members of the profession on the R.C.V.S. Register. We hope to pay further tribute in an early issue.

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The Late Mr. William Gibson, M.R.C.V.S.

Mr. William Gibson, of Avenue House, Grantham, whose untimely death at the early age of 45 years we recorded with much regret in our last issue, was educated at Oakham, and at the outbreak of the last war was studying at the Royal Veterinary College, London. On attaining the age of 17, however, he volunteered for the Army and served abroad with the King Edward's Horse, the R.A.V.C. and the Royal Warwickshire Regiment and was severely wounded. At the end of the war he resumed his studies at the Veterinary College. After graduation he practised at Oakham until his marriage to Miss V. E. M. White, of Wood Farm, Headington, Oxford, after which he went to Newmarket. Eventually he returned to Oakham, owing to the serious illness of his father the late Mr. G. E. Gibson, with whom he went into partnership, managing the practice on the Grantham side.

Mr. Gibson took a great interest in the National Veterinary Medical Association, acting as Hon. Secretary of the Lincolnshire and District V.M.A. for a number of years until elected to the presidency in 1942. He was very fond of shooting and hunting, and was a keen follower of the Belvoir and Cottesmore Hounds.

Mr. Gibson joined the R.A.V.C. (T.A.) in 1922 and was attached to the Leicestershire Yeomanry until 1936, when he resigned with the rank of captain. On May 14th, 1940, he joined the L.D.V. (now the Home Guard), and was officer commanding No. 4 Platoon, A Company, 3rd Kesteven Battalion, until latterly, when he was appointed liaison officer to the Battalion.

The Funeral

Home Guards of the 3rd Kesteven Battalion and "A" Company formed a guard of honour as the cortege left the church at the funeral at All Saints' Church, Oakham, conducted by the Vicar, the Rev. C. O. R. Wormald.

The following members of the profession were present: Messrs. G. Gibson (brother), W. K. Townson (representing the R.C.V.S.), T. Hicks (representing the N.V.M.A.), G. Eaton, G. A. Moore (representing the Lincolnshire and District Veterinary Medical Association) (President), J. N. Glass, P. E. Emson, C. Weighton and Major E. O'Kelly, R.A.V.C.

R.C.V.S. ANIMAL MANAGEMENT EXAMINATION

List of Successful Candidates

(Concluded)

London:

Archer, R. K.	Gronow, W. P.	Morgan, James (credit)
Barnes, E. G. (credit)	Hammond, F. C.	Murray, M. D.
Bonnaud, Miss Zoe	Jones, E. W.	Mutton, C. H.
Breeze, Miss L. A.	Jones, S. M. C.	Parsons W. G.
Brooks, W. E. J.	Kenny, Miss D. M.	Ridley, Wm.
Brown, A. R.	Lawn, A. M.	Stables, J. W.
Brown, R. H.	Lewis, T. R. B.	Stafford, L. P.
Cleverley, Miss D. C.	McCarthy, B. J. A. (credit)	Tunney, T. F. (credit)
Duncan, E. S.	Mercer, P. H.	Watts, E. T.
Dunn, P. S. (credit)	Mills, H. D.	Woodford, M. H.
Garner, R. J.		

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ROYAL ARMY VETERINARY CORPS

The following announcement is made in the issue of *The London Gazette* dated March 21st, 1943: To be Lts.: Terry Boundy, B.V.Sc. (266283) (March 15th, 1943); Douglas Jack Pearce Scott (270024) (April 7th, 1943).

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THE FOUR-YEAR PLAN FOR AGRICULTURE

In a recent address to the Council of Agriculture, Mr. R. S. Hudson, Minister of Agriculture, said that he had read the Report of the Standing Committee of the Council about post-war agricultural policy with great interest. He could say no more at this stage. It had not proved possible yet to discuss with the industry the basic principles of our post-war policy. This did not mean that the War Cabinet was still not firm in their view that a healthy and well-balanced agriculture must form one of the essential planks of our post-war national economy. The Prime Minister, he continued, had told them that a healthy agriculture must be one of the key stones of our four-year plan after the war.

Mr. Hudson, referring to his recent speech at the Caxton Hall, said that the four-year plan for agriculture which he spoke of then did not mean a post-war plan, but meant a plan that would take us to the harvest of 1947. "Since I told you this time last year," he continued, "that 1943 would be the crisis year, shipping losses and the demand for military operations for every ship that can be spared have compelled Lord Woolton to ask me to do again in 1943 what we are doing this year; actually he asked if we could do better still." Mr. Hudson asked his listeners to remember that there are still over ten million acres of permanent grass in England and Wales, not all of which is ploughable, but a large part of it—probably some millions of acres—could and should be ploughed in the next four years. We must still produce the maximum amount of crops for human and animal consumption. He called for a policy of turning over more grassland for cropping, while gradually reseeding to leys of varying duration. He wanted to see every farm in every county with a plan worked out so that by 1947 every acre of land that could and should be ploughed on that particular farm would have been turned over. The effect would be something like six million acres under leys of varying duration, one to six years old.

Livestock Policy

We should require a larger head of both cattle and sheep to consume the additional grass, and he looked for a very material improvement in the quality of cattle and sheep. The better breeding of cattle for milk and beef must, therefore, be one of our major concerns. Mr. Hudson reiterated how shocked he had been at the poor quality of so much of the cattle—especially dairy cattle—that he had seen in the counties and he had instructed County Committees to concentrate increased attention on raising the efficiency of livestock production. A sound breeding policy must be adopted and only good sires used. The National Milk Recording Scheme, the extension of our Bull Licensing Scheme, the schemes to combat animal diseases, should all assist in this campaign. He was still not satisfied, however, and hoped to be in a position soon to announce further steps which would help towards an efficient and healthy livestock industry.

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ORGANISING THE WORLD'S FOOD

At its session on May 30th, the production section of the United Nations Food Conference submitted a report which (says *The Times*) contains what is regarded as the "blue-print" of increased food production and the abolition of want everywhere. The report makes suggestions which, it is hoped, will eventually mean that every country will have enough of the right kind of foods to maintain a high degree of health and efficiency.

It foresees a scarcity of the principal foodstuffs in the immediate post-war period, as well as a scarcity of transport, fertilisers, seed, farming machinery, and fuel for tractors. To meet the famine and hunger of this period the report calls for increased acreage of crops for direct human consumption, even at the risk of delaying the rebuilding of livestock herds, and for the limitation of other crops which compete for acreage with essential foods.

For the provision of better diets over a long term it will be necessary in the transition period, says the report, for each nation progressively to adjust the use of its available agricultural production to coform with a long-term plan for the best use of those resources on a world scale. Each nation will be asked to place emphasis on greater production of vegetables, fruit, milk, eggs and meat, and on increase of livestock in areas where feed is economically obtainable, while the production of easily stored foods, such as grains and cereals, would be progressively limited in areas where they cannot be produced efficiently. The interests of producers, it is urged, must be protected by assuring them a fair return for their produce.

As most important among the national and international measures to be taken, the report specifies improvements in farming systems and practices, credit facilities, co-operative services, improved land tenure systems, and educational procedures. Single-crop farming for small farmers should be discouraged, and there must be suitable distribution of fertilisers, particularly nitrates, and of insecticides and veterinary drugs. Joint planning and the exchange of information and specialists internationally can and should be carried out the report states, and besides increasing the productivity of land already cultivated, it will be necessary to bring into cultivation all the land in the world that can be economically developed.

One of the major obstacles to increased production is declared to be agricultural over-population—millions living on land from which they cannot wrest adequate nutrition for themselves. "Nearly half the population of the world are living too close together, on too small farm-units, yet unable to find other means in their regions of making a living." The report recommends several methods of reducing such surplus agricultural population, including more efficient agricultural technique, a change from extensive to intensive agriculture, the development of owner-operated family-size units, the development of new lands, and long-term public works programmes. But the report points out that these have but limited possibilities, and that the real clue to solving the problem is industrial development in those areas which are over-populated, thereby providing other work for those unable to gain a decent livelihood from their lands, raising the general standard of living, and enabling those remaining on farms to get an adequate livelihood.

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IRISH CATTLE IMPORTS: TEST DEMAND BY DEVON

"Viewing with concern the importation into the county of Irish cattle suffering from tuberculosis Devon Diseases of Animals Sub-committee at Exeter yesterday passed a resolution urging representations to the Ministry of Agriculture that all cattle from Ireland should be carefully selected for their beef and milk potentialities and also subjected to the tuberculin test before export," states the *Western Morning News* of May 20th and continues: "The Deputy Chief Constable of Devon, Mr. A. E. Martin, having reported that 179 cattle were imported last quarter, Maj. J. Scott Tucker enquired if they came direct from Ireland or had arrived in the county through a series of markets.

"Mr. D. S. Barbour, county veterinary officer, replied they came direct. They showed no clinical symptoms of disease, but had not been tuberculin-tested in Ireland. The purchaser had them tested, and he resold those which did not pass the tests.

"Mr. T. Dunn thought the attention of the Ministry should be called to the fact that animals were being imported with the disease and were 'running about from market to market.'

"In further discussion Mr. Barbour said that if the cattle were tuberculin-tested in Ireland there would be a very big diminution in the number imported."

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RURAL LAND UTILISATION

In February 1942, the Government announced their acceptance of the principle of planning the use of the land so as to secure its most appropriate development and use. It was stated that the general promotion of rural development in the light of a positive policy for the maintenance of a healthy and well-balanced agriculture was to be a purpose of policy, and that to this end the Government would seek to avoid the diversion of productive agricultural land to other purposes where there was land of lesser worth that could reasonably be used instead.

The Minister of Agriculture has now set up an organisation to provide information and advice on matters affecting agriculture and the utilisation of the land and to co-operate closely on all questions of town and country planning. The appointment of Dr. L. Dudley Stamp as Chief Adviser on Rural Land Utilisation

has already been announced. Rural Land Utilisation Officers have since been appointed for each of the various regions of England and Wales.

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Worcestershire Agricultural Committee has reported a case of anthrax which resulted in the death of a farmer. It is stated that the infection was traced to bone meal bags which had been used for cattle food and had been handled by the farmer. A cow on the farm also died from anthrax.

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The British record for aggregate milk production has been broken by Chebbard Heather, a 14-year-old pedigree British Friesian cow, bred and owned by Mr. F. N. Terry, of Chebbard, Dorchester, Dorset, with a total, to May 9th, of 20,563 gallons, or 91 tons 16 cwt. 7¼ lb. The record was previously held by the British Friesian Ongar Estelle with a lifetime aggregate of 20,516 gallons, or 91 tons 11 cwt. 92¼ lb.

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Mr. W. S. Morrison, at his first Press conference as Minister of Town and Country Planning, said that the war had taught us Britain's need of a prosperous agricultural system. That must be planned for, and it must be remembered that there were slums in the country as well as in the towns. Those who lived and worked on the land were justly entitled, equally with the townsman, to every social service which the community could provide.

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The National Farmers' Union has appointed a committee to explore the possibilities of the suggestion made by several county branches that as part of the long-term policy for promotion of health of the dairy herd and the production of clean milk, all dairy cattle be subjected to the tuberculin test.

Advertisers' Announcement

There is an unfortunate error (for which we are to blame) in our advertisement in your issue for May 29th (half-page, inside front cover, "Joint-ill"). In the list of prices, the price of "M & B 693" brand sulphapyridine, packages of 25 gm. is given as 4s. 4d. nett; this should have been 4s. net.—Pharmaceutical Specialities (May & Baker) Ltd.

CORRESPONDENCE

Letters to the Editor should reach the Office not later than by the first post on Monday morning for insertion in following Saturday's issue.

The views expressed in letters addressed to the Editor represent the personal views of the writer only and must not be taken as expressing the opinion or having received the approval of the N.V.M.A.

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VETERINARY SURGEONS AND MILITARY SERVICE

Sir,—As has already been announced, members of the veterinary profession are no longer reserved from military sevice, but they will not be called up except for service in their professional capacity. Men of military age are, however, liable to be conscripted for the Army Veterinary and Remount Services, but it is hoped that there will be a sufficient number of volunteers to render it unnecessary to proceed to conscription.

There is now an urgent demand for a number of young men for service as commissioned officers in the Royal Army Veterinary Corps. Preference will be given to men under 32 years of age. They should be medically fit and willing to serve overseas.

Applications should be addressed to the Director, A.V. & R.S., War Office.

Yours faithfully,

Fred Bullock,
Registrar.
Royal College of Veterinary Surgeons,
18, Victoria Avenue,
Harrogate,
Yorks.
May 27th, 1943.

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VETERINARY SURGEONS ACTS (AMENDMENT) BILL

Sir,—The above Bill is probably one of the most momentous pieces of proposed legislation affecting the veterinary profession which there has ever been and we should do ill if we failed to appreciate the significance of its provisions, as they would affect both present and future generations.

For the first time in history, we are presented with a Bill which prohibits "quackery" and will provide the profession, in the fullness of time, with a less encumbered field for its general activities. In the meantime, the price of complete emancipation is to be paid by the existing generation of veterinarians and it is, therefore, necessary for us to ensure, first, that the price is not prohibitive and, second, that the conditions of purchase are reasonably satisfactory.

It is stated that Parliament will insist upon provision being made to safeguard the interests of all persons who, at the passing of the Act, had been earning their livelihood by giving medical and surgical treatment to animals and we are bound to accept this as an essential condition. The Bill, therefore, provides that all unqualified practitioners who can fulfil the necessary preliminary requirements shall be registered by the R.C.V.S.—which is the central body best suited to carry this out—and shall thereupon be subject to the jurisdiction of the Royal College and shall be bound by any regulations which the Council may make under the Act. This would appear to be both necessary and desirable, provided that the regulations are no less stringent than those governing veterinary surgeons, and it is difficult to see how the status of the unqualified practitioner can become very much altered under such conditions. It is to be presumed that, under the provisions of Clause 1 (1) of the Bill, failure either to become or to remain a registered animal practitioner will debar a person from giving medical and surgical treatment to animals.

The provisions of the Bill which govern the activities of animal welfare societies are less exacting, but do not appear to allow the incubation of a serious menace to the veterinary profession generally.

It would seem that we ought to view the Bill in general as a long-term policy measure designed for the eventual freedom of the profession and one which has been produced and sponsored, not without sacrifice, by the present generation of veterinarians for the betterment of the next and for the protection of the public as a whole.

I am, Sir,
Yours faithfully,

James C. Buxton
Bragleen,
Weybridge.
May 25th, 1943.

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Sir,—In looking through the letters on the draft of the proposed Bill I noticed that all the writers are against it. I was therefore surprised to hear from Dr. Bullock, in reply to some criticisms from me on the subject, that the Council of the R.C.V.S. has the support of the profession in the action they have taken in preparing this draft. This was the passing of a vote by the members present at an annual general meeting of the R.C.V.S. which gave the Council a mandate to proceed. There are difficulties for the supporters of the draft in discussing the matter through your correspondence columns, and I therefore suggest a memorandum giving the points of their case should be circulated to all members by the Council of the R.C.V.S. before members are asked to vote on the subject.

Yours faithfully,

J. A. Griffiths.
4, Denmark Villas,
Hove, 3,
Sussex.
May 18th, 1943.

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Sir,—Has not the Council, R.C.V.S., anything better to do than waste its time trying to help people who have been getting their living by quackery? There are quite enough quacks about without the Council doing its best to encourage more of them. Is helping quacks any benefit to the many young men who have spent a lot of money and time to obtain a Diploma? If I wrote 1,000 words I could not express my opinion better than Mr. F. J. Kinghorn has done in the issue of *The Veterinary Record* of May 15th.

Yours faithfully,

Elmer Ebbetts.
Rochester.
May 20th, 1943.

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USE OF ACID DETERGENTS FOR DAIRY EQUIPMENT

Sir,—In the American journal *Industrial and Engineering Chemistry* for January, 1943, there is a most interesting article on the use of acid detergents for dairy equipment. They seem especially useful in overcoming the stale, unwholesome odour of varying intensity that persists in many dairy utensils after treatment with existing materials and methods.

A commercial acid cleaner known as Mikro San is reported as giving excellent results, and I wonder if any reader of the *Record* has had experience in its use.

Yours faithfully,

John C. Grant.
The North of Scotland College of Agriculture,
Veterinary Department,
Marischal College,
Aberdeen.
May 21st, 1943.